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EXAMINER

HENRY, MATTHEW ALLAN

ART UNIT

PAPER NUMBER

2116

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/021,058

Applicant(s)

WONG ET AL.

Examiner

Matthew A. Henry

Art Unit

2116

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6 and 22-24 is/are allowed.
- 6) ☒ Claim(s) 7-11, 13-15 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 12, 16 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

In Figure 5, Items 23, 25, 27 and 29 are not shown. In Paragraph 33 and 33, Lines 7 and respectively, changing “22-30” to read “22, 24, 26, 28 and 20” would correct this problem.

In Figure 5, Items 11, 13, 15 and 17 are not shown. In Paragraph 34, Line 4, changing “10-18” to read “10, 12, 14, 16 and 18 would correct this problem.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

In Figure 5, Item 32 is not described in the specification.

In Figure 7, Item 67 is not described in the specification.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:

Paragraph 25, Line 10 contains a typographical mistake. Adding “.” to the end of the sentence will fix this mistake.

Paragraph 45, Lines 1 and 3 contain a typographical mistake. The word “be” should be replaced with “been” to fix this mistake.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The use of the term “MATLAB” in the claim renders the scope of the claim unclear, as The MathWorks, Inc. could choose to alter the operation of this simulator without changing its designation.

6. **Claims 8-11 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geannopoulos (6,075,832) in view of Thacker (5,313,501).**

Concerning Claim 8, Geannopoulos discloses:

A circuit on a die for optimization of clock delay to minimize the effect of power supply noise (Figure 1, Item 20; Column 3, Lines 21-23) comprising:

a clock generator (Figure 2, Item 10);

Art Unit: 2116

a clock tree comprising a plurality of clock nets (Figure 2, Item 30 and 40);
at least one delay element connected between the clock generator and the clock tree (Figure 2, Items 300A, 300B, 400A and 400B), the at least one delay element delaying a clock signal from the clock generator to the clock tree (Column 3, Lines 56-60); and

wherein the delay caused by the at least one delay element (Figure 2, Items 300A, 300B, 400A and 400B) is set to provide a delay of the clock signal that minimizes the effect of noise from a power source (Columns 1 and 3, Lines 25-27 and Lines 56-60, respectively) on the clock signal as it travels along the clock nets and on the data as it travels along a data path (Column 1, Lines 33-35).

Geannopoulos does not disclose at least two storage devices, the at least two storage devices storing data received upon receipt of the clock signal.

Thacker teaches:

at least two storage devices (Figure 4, Items 122) storing data received upon receipt of the clock signal (Column 4, Lines 29-33).

Thacker is concerned with parallel data streaming where skew between the streams is minimized so as to reduce transmission errors (Column 1, Lines 23-31).

Accordingly, it would have been obvious to combine the teachings for the need for de-skewed parallel data streams in a data transfer system as shown by Thacker with the disclosed method for providing minimal skew in a clock distribution network given by Geannopoulos for the benefit of reducing errors in transferring data on parallel data streams.

Concerning Claim 9, Geannopoulos further discloses:

Art Unit: 2116

the clock generator comprises a phase locked loop (PLL) device (Figure 2, Item 10).

Concerning Claim 10, Geannopoulos further discloses:

the at least one delay element comprises at least a logic gate (Figure 7, Items 401A and 402A).

Concerning Claim 11, Thacker further teaches:

the at least two storage devices comprise latches (Column 4, Lines 29-33).

Regarding Claim 17, Geannopoulos discloses:

A processor microcircuit (Figure 1, Item 20; Column 3, Lines 21-23) comprising:
a clock generator (Figure 2, Item 10);
a clock tree comprising a plurality of clock nets (Figure 2, Item 30 and 40);
at least one delay element connected between the clock generator and the clock tree (Figure 2, Items 300A, 300B, 400A and 400B), the at least one delay element delaying a clock signal from the clock generator to the clock tree (Column 3, Lines 56-60); and

wherein the delay caused by the at least one delay element (Figure 2, Items 300A, 300B, 400A and 400B) is set to provide a delay of the clock signal that minimizes the effect of noise from a power source (Columns 1 and 3, Lines 25-27 and Lines 56-60, respectively) on the clock signal as it travels along the clock nets and on the data as it travels along a data path (Column 1, Lines 33-35).

Art Unit: 2116

Geannopoulos does not disclose at least two storage devices, the at least two storage devices storing data received upon receipt of the clock signal.

Thacker is concerned with parallel data streaming where skew between the streams is minimized so as to reduce transmission errors (Column 1, Lines 23-31).

Accordingly, it would have been obvious to combine the teachings for the need for de-skewed parallel data streams in a data transfer system as shown by Thacker with the disclosed method for providing minimal skew in a clock distribution network given by Geannopoulos for the benefit of reducing errors in transferring data on parallel data streams.

Concerning Claim 18, Geannopoulos further discloses:

the clock generator comprises a phase locked loop (PLL) device (Figure 2, Item 10).

Concerning Claim 19, Geannopoulos further discloses:

the at least one delay element comprises at least a logic gate (Figure 7, Items 401A and 402A).

Concerning Claim 20, Thacker further teaches:

the at least two storage devices comprise latches (Column 4, Lines 29-33).

7. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor (5,627,736) in view of Thacker (5,313,501).

Concerning Claim 13, Taylor discloses:

Art Unit: 2116

A circuit on a die for optimization of clock delay to minimize the effect of power supply noise (Column 3, Lines 41-42) comprising:

a clock generator (Figure 3, Item 309A);

a clock tree comprising a plurality of clock nets (Figure 3, Item 309B);

at least one filter element (Figure 3, Item 305) connected between a power source (Figure 3, Item 303) and at least one element transferring the clock signal in the plurality of clock nets (Figure 3, Item 309B), the at least one filter element filtering noise from the power source (Column 4, Lines 50-53).

Taylor does not disclose at least two storage devices, the at least two storage devices storing data received upon receipt of a clock signal from the clock generator.

Thacker is concerned with parallel data streaming where skew between the streams is minimized so as to reduce transmission errors (Column 1, Lines 23-31).

Accordingly, it would have been obvious to combine the teachings for the need for de-skewed parallel data streams in a data transfer system as shown by Thacker with the disclosed method for providing minimal skew in a clock distribution network given by Taylor for the benefit of reducing errors in transferring data on parallel data streams.

Concerning Claim 14, Taylor further discloses:

the clock generator comprises a phase locked loop (PLL) device (Figure 3, Item 309A).

Concerning Claim 15, Thacker further teaches:

the at least two storage devices comprise latches (Column 4, Lines 29-33).

Allowable Subject Matter

8. Claims 12, 16 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 1-6 and 22-24 are allowed.

10. The following is an examiner's statement of reasons for allowance:

Applicant claims the determination and use of a response curve of a power source for a circuit in adjusting clock delay on a clock distribution network. This response curve permits an integration over time of the power supply noise to assist in calculating the optimal clock delay in the system. There is neither evidence nor motivation suggesting that the a power response curve should be utilized in this fashion along with the clock and data delays and sensitivities, so that the effects of power supply noise may be reduced. Accordingly, it would not have been obvious to a person of ordinary skill in the art to arrive at the invention as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**LYNNE H. BROWNE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100**

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew A. Henry whose telephone number is (571) 272-3845. The examiner can normally be reached on Monday - Friday (8:00 am -5:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on (571) 272-3670. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAH


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